

Grid-Connected PV Capacity (kW) Installed in California

California Energy Commission*	23,355
Sacramento Municipal Utility District	11,322
Los Angeles Department of Water and Power	7,281
California Public Utilities Commission*	6,497
Pre-1998	1,918
City of Riverside Public Utilities	379
City of Anaheim Public Utilities	261
City of Palo Alto Utilities	234
City of Roseville Electric	93
City of Pasadena Water and Power	84
City of Santa Clara Electric Utility	54
City of Glendale Water and Electric	19
Pacific Power	19
City of Burbank Water and Power	7
City of Ukiah Public Utilities	7
City of Alameda Power and Telecom	5
City of Lodi Electric Utility	4
City of Redding Electric Utility	2

TOTAL	51,538 kW
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51.54 MW

This analysis tracks the capacity of grid-connected PV installations in California from 1981 until the present. The vast majority of the early installations can be attributed to the work done by the Sacramento Municipal Utility District (SMUD). Beginning in 1998, the Energy Commission's Emerging Renewables ("Buydown") Program began offering rebates for grid-connected "emerging" systems in the service territories of the three largest Investor Owned Utilities (IOUs) - PG&E, SCE and SDG&E. In 2001, the Public Utilities Commission began the Self-Generation Incentive Program. The "Self-Gen" Program also offers rebates, but the program is administered by the utilities (PG&E, SCE, SDG&E and SCGC) directly. The Los Angeles Department of Water and Power (LADWP), as well as many of the smaller utilities, offer their own incentive programs.

* The Energy Commission's Emerging Renewable Program is open to the ratepayers of PG&E, SCE and SDG&E. The Public Utilities Commission's Self-Generation Incentive Program is open to the ratepayers of PG&E, SCE, SDG&E and the SCGC.

Grid-Connected PV Capacity Installed in California

YEAR

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003**	Total
Program																								
Sacramento Municipal Utility District	0	0	0	1,230	0	1,230	0	0	0	0	0	23	495	675	561	421	405	236	1,220	1,446	1,679	1,390	311	11,322
California Energy Commission*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	181	619	726	4,036	8,108	9,685	23,355
Pacific Gas and Electric	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	61	360	487	2,041	4,949	5,883	13,780
Southern California Edison	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120	250	133	1,120	2,116	2,439	6,178
San Diego Gas and Electric	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	106	866	1,042	1,354	3,378
Bear Valley Electric	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	9	19
Los Angeles Department of Water and Power	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	102	432	589	2,573	3,585	7,281
California Public Utilities Commission*																					0	1,859	4,638	6,497
Pacific Gas and Electric	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,671	2,125	3,796
Southern California Edison	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	114	1,551	1,665
San Diego Gas and Electric	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	74	962	1,036
***Southern California Gas Company	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pre-1998	37	38	11	12	15	63	-	4	59	15	17	477	806	(336)	(250)	378	110	464	-	-	-	-	-	1,918.08
City of Palo Alto Utilities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	16	101	74	27	234
City of Santa Clara Electric Utility	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	34	14	4	54
City of Pasadena Water and Power	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	84	0	84
City of Burbank Water and Power	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	3	0	7
City of Anaheim Public Utilities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	141	84	35	261
City of Redding Electric Utility	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
City of Glendale Water and Electric	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0	19
City of Riverside Public Utilities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	150	15	214	379
City of Roseville Electric	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	54	29	93
Pacific Power	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	9	0	19
City of Alameda Power and Telecom	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	1	0	5
City of Ukiah Public Utilities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1	7
City of Lodi Electric Utility	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4
TOTAL	37	38	11	1,242	15	1,293	0	4	59	15	17	500	1,301	339	311	799	515	885	1,971	2,622	6,744	14,294	18,529	51,538
Cumulative Total	37	75	86	1,328	1,342	2,635	2,635	2,639	2,698	2,713	2,730	3,230	4,530	4,869	5,180	5,980	6,494	7,379	9,350	11,971	18,715	33,009	51,538	

NOTES

* The Energy Commission's Emerging Renewable Program is open to the ratepayers of PG&E, SCE and SDG&E. The Public Utilities Commission's Self-Generation Incentive Program is open to the ratepayers of PG&E, SCE, SDG&E and the SCGC.

** The 2003 data is current as of September/October 2003.

*** The Southern California Gas Company (SCGC) has paid on over 1 MW of PV. However, the Gas Company has overlapping territory with several electric utilities that are reporting on the same projects. For projects that have participated in multiple programs with the Gas Company, the totals will be reported by electric utilities. Projects that have only participated in the Gas Company rebate program will be reported under the Gas Company header.

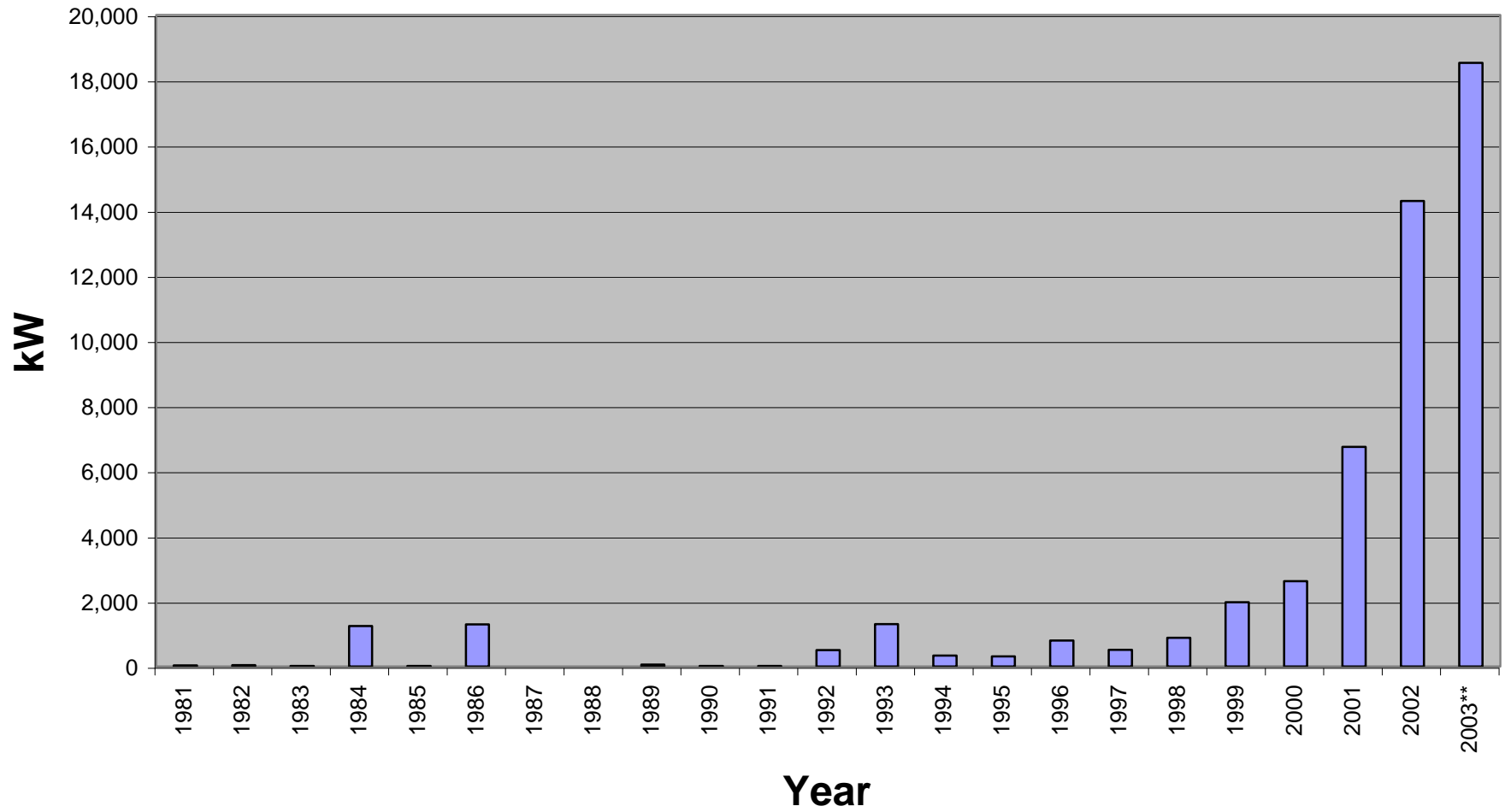
"Pre-1998" Row: These numbers were derived by subtracting the total kW installed by SMUD each year from the totals contained in Appendix A of the 2001 EPRI Report titled "California Renewable Technology Market and Benefits Assessment." In some years, there is a negative number. This obviously did not happen. To be consistent with the EPRI data, it was decided to keep the negative number rather than make more assumptions. Similarly, when determining the number of systems by year, the results showed negative numbers. Again, to be consistent with the EPRI data, it was decided to keep the negative number rather than make more assumptions.

In some cases, the 2002 totals for the smaller utilities reflect the cumulative total of all PV installed, not just the 2002 total.

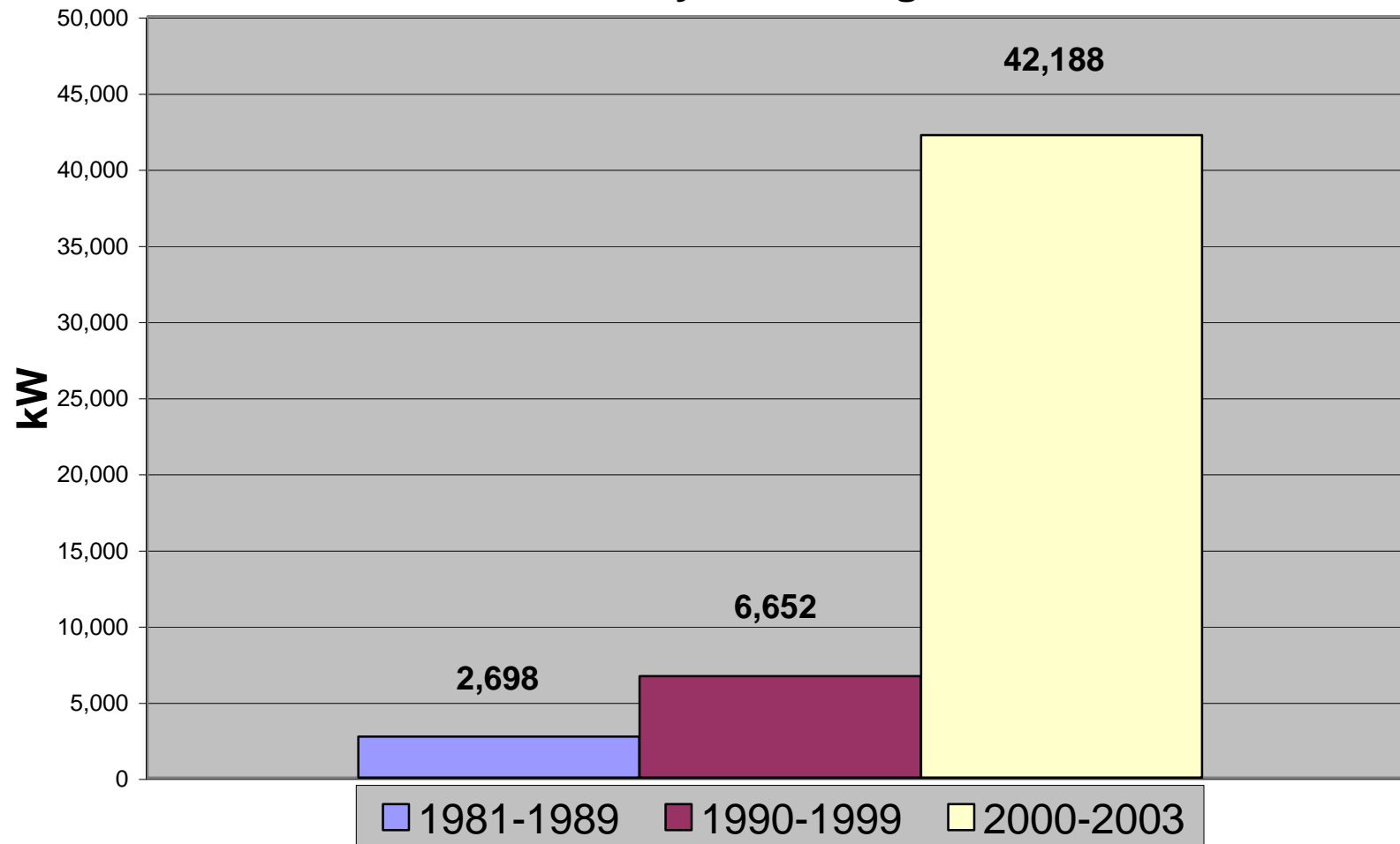
Many of the utilities contacted had, at one time, a solar rebate program. It is possible other utilities have rebate programs, or other utilities may have installed PV, but those are not accounted for in this summary.

The Energy Commission numbers do not include any Publicly Owned Electric Utility installed systems. The Energy Commission has paid for 309 kW of these systems. However, to avoid double counting, these numbers were subtracted from the yearly totals.

Grid-Connected PV Capacity Installed in California By Year

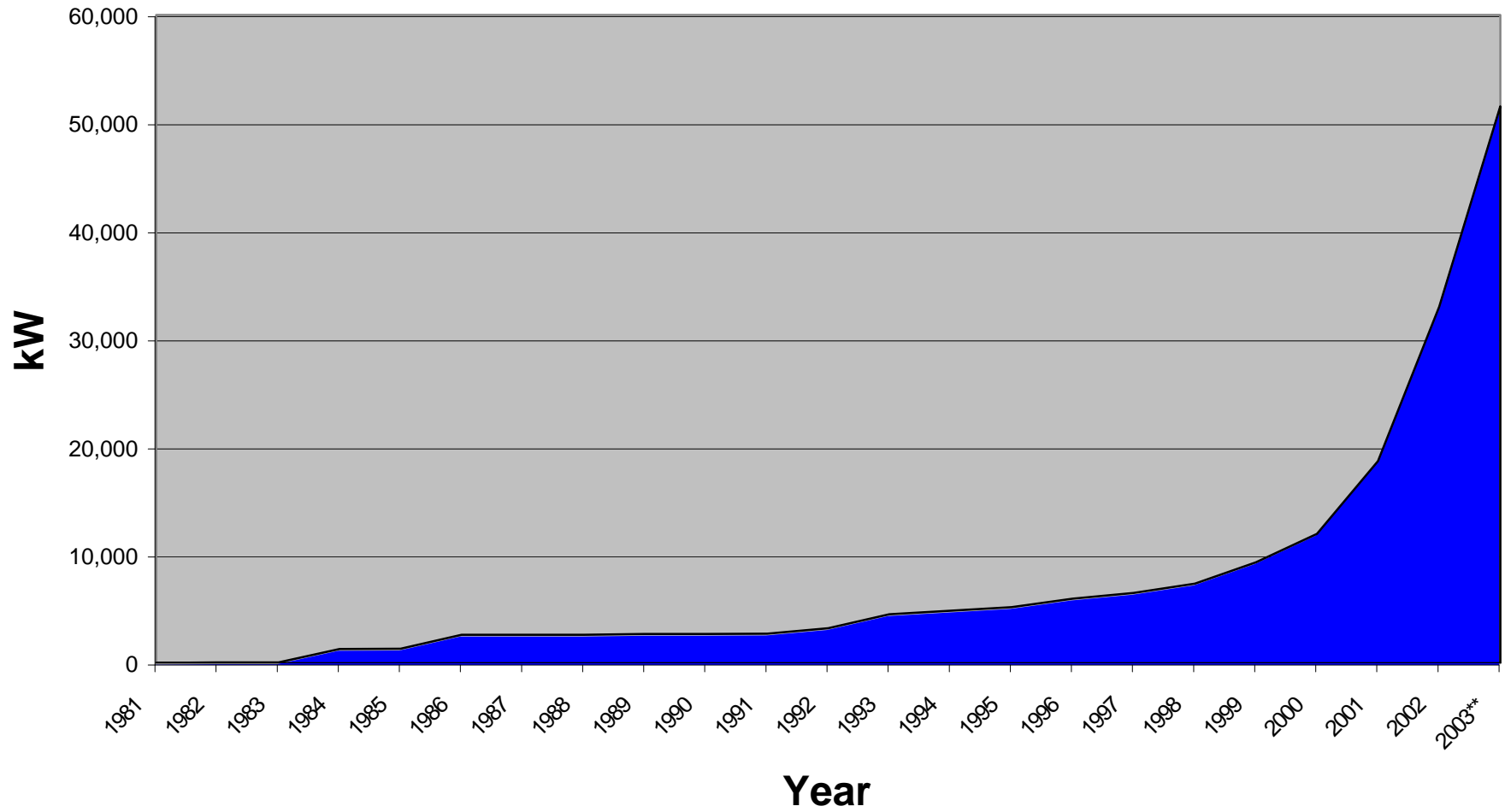


Grid-Connected PV Capacity Installed in California by Date Range

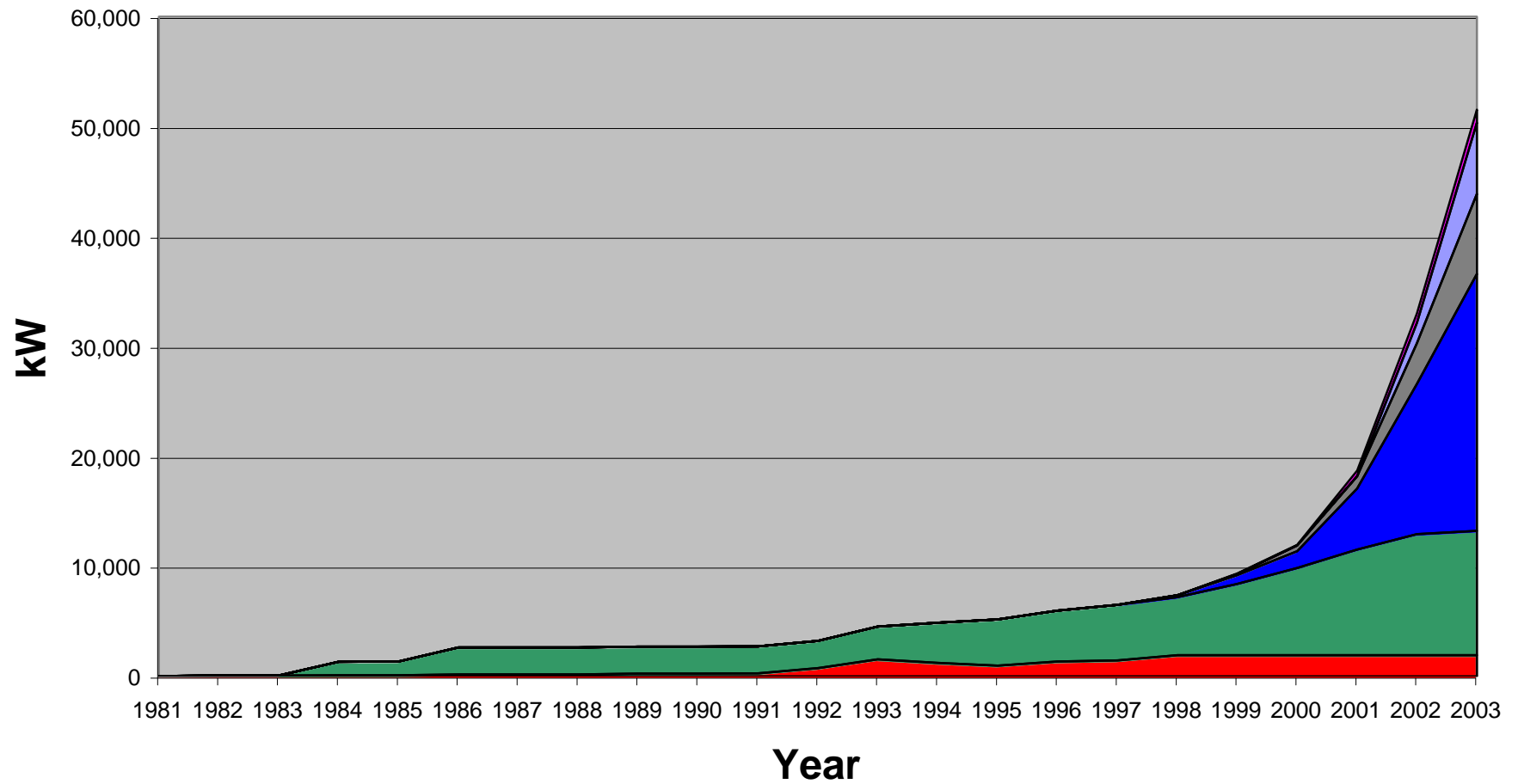


Grid-Connected PV Capacity Installed in California

Cumulative

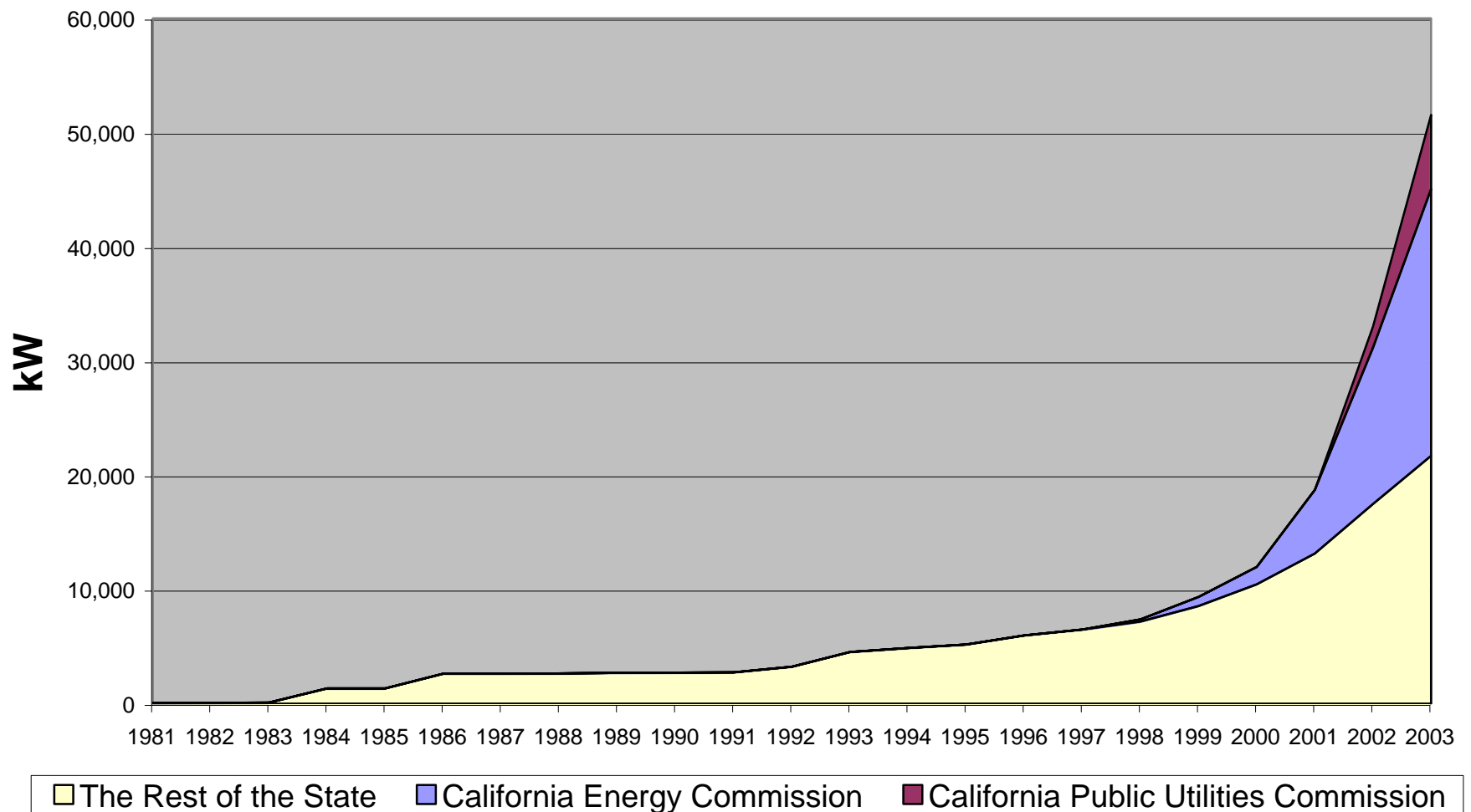


Grid-Connected PV Capacity Installed in California Cumulative

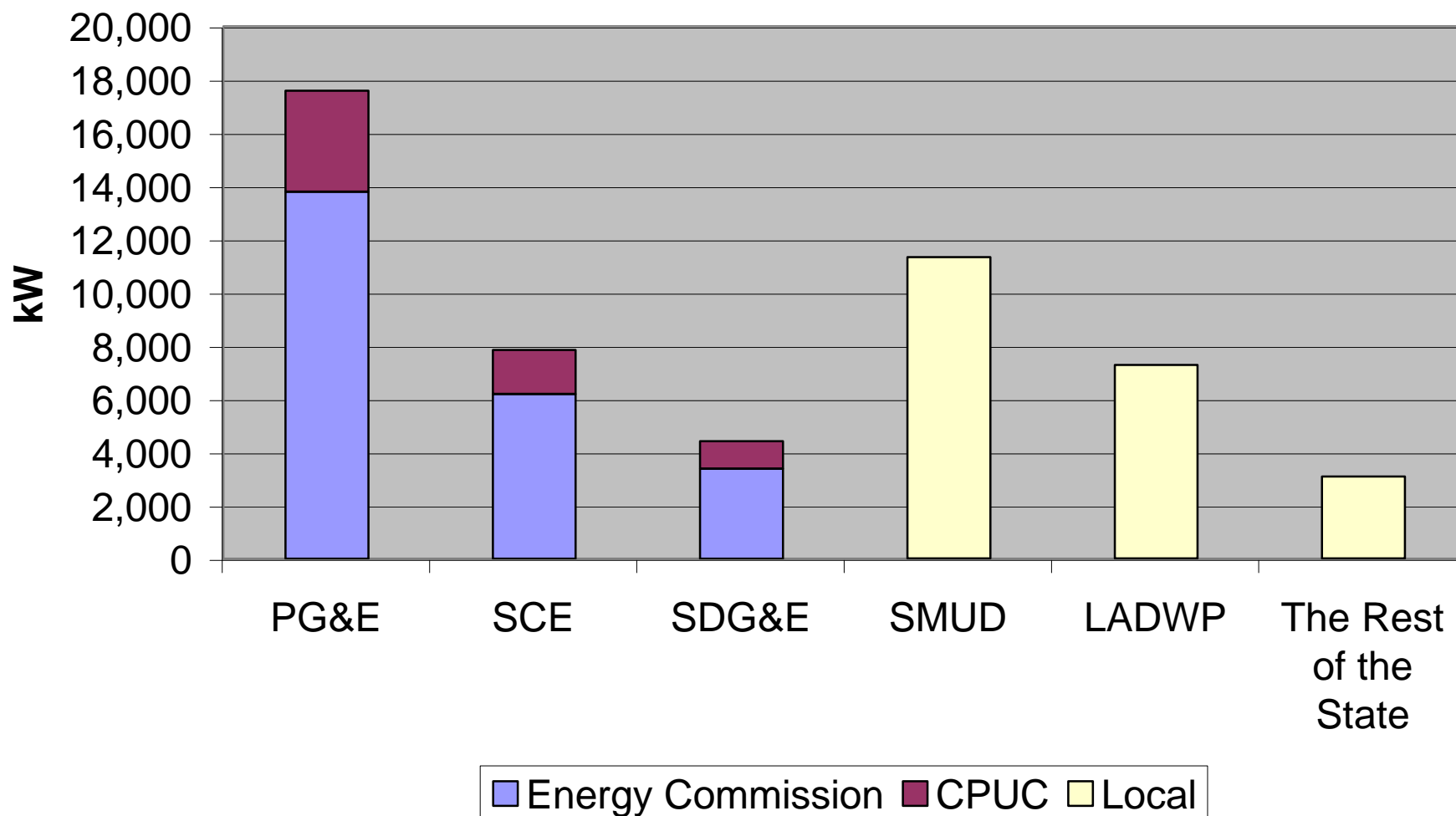


Unknown SMUD Energy Commission LADWP CPUC Other

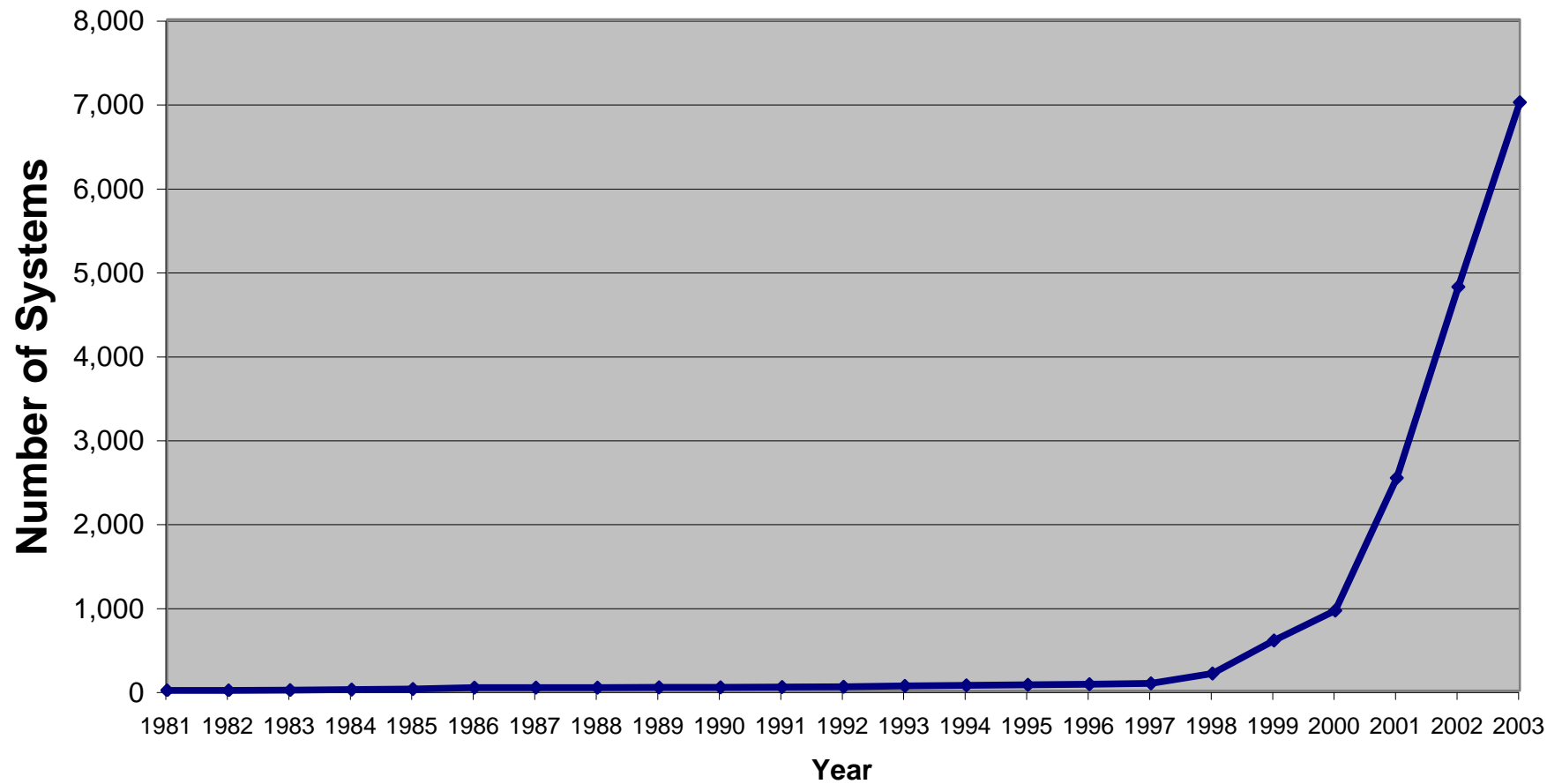
Grid-Connected PV Capacity Installed in California Cumulative



Grid-Connected PV Capacity Installed in California by Service Territory



Number of Grid-Connected PV Systems Installed In California Cumulative



Grid-Connected PV Program Contacts in California

Program	Contact	Telephone	Email
California Energy Commission*	Dale Trenchel	916-653-2834	Dtrench@energy.state.ca.us
California Public Utilities Commission*	John Galloway	415-703-2565	jhg@cpuc.ca.gov
PG&E	Dean Heatherington	415-973-2362	selfgen@pge.com
SCE	Howard Green	626-302-8436	greenh@sce.com
SDG&E	Mike Magee	858-244-1177	selfgen@sdenergy.org
SCGC	Marshall Kiyohiro	213-244-5619	selfgeneration@socalgas.com
Sacramento Municipal Utility District	Stephen Frantz	916-732-5107	SFrantz@smud.org
Los Angeles Department of Water and Power	Thomas Honles	213-367-3151	thomas.honles@ladwp.com
City of Palo Alto Utilities	Lindsay Joye	650-329-2241	pvparkers@cityofpaloalto.org
City of Santa Clara Electric Utility	Leslie Brown	408-244-SAVE	lbrown@ci.santa-clara.ca.us
City of Pasadena Water and Power	Mauricio Mejia	626-744-6970	mmejia@ci.pasadena.ca.us
City of Burbank Water and Power	John Joyce	818-238-3653	jjoyce@ci.burbank.ca.us
City of Anaheim Public Utilities	Dina Predisik	714-765-4182	dpredisik@anaheim.net
City of Redding Electric Utility	Pam Brady-Koss	530-339-7215	pbradykoss@reddingelectricutility.com
City of Glendale Water and Electric	Ned Bassin	818-548-2748	nbassin@ci.glendale.ca.us
City of Riverside Public Utilities	Atoya Mendez	909-826-5790	amendez@ci.riverside.ca.us
City of Roseville Electric	Pat Morrison	916-774-5624	pmorrison@roseville.ca.us
Pacific Power	Michael Reid	503-813-6052	michael.reid@pacificorp.com
City of Alameda Power and Telecom	Don Rushton	510-748-3946	drushton@alamedapt.com
City of Ukiah Public Utilities	Cindy Sauers	707-463-6295	cindys@cityofukiah.com
City of Lodi Electric Utility	Rob Lechner	209-333-6800 x 2583	rlechner@lodielectric.com

Grid-Connected PV Program Alternate Contacts in California

Program	Contact	Telephone	Email
California Energy Commission*	Todd Lieberg	916-654-4059	tlieberg@energy.state.ca.us
California Public Utilities Commission*	John Galloway	415-703-2565	jhg@cpuc.ca.gov
PG&E	Sara Burmingham	415-973-5187	sebb@pge.com
SCE	Robert Thomas	626-302-1746	robert.thomas@sce.com
SDG&E	Scott Anders	858-244-1177	san@sdenenergy.org
SCGC	Tony Prietto	213-244-3679	aprietto@semprautilities.com
Sacramento Municipal Utility District	Stephen Frantz	916-732-5107	SFrantz@smud.org
Los Angeles Department of Water and Power	Darryl Gordon	213-367-3250	dgord1@ladwp.com
City of Palo Alto Utilities	Lindsay Joye	650-329-2241	pvparkers@cityofpaloalto.org
City of Santa Clara Electric Utility	Leslie Brown	408-244-SAVE	lbrown@ci.santa-clara.ca.us
City of Pasadena Water and Power	Mauricio Mejia	626-744-6970	mmejia@ci.pasadena.ca.us
City of Burbank Water and Power	John Joyce	818-238-3653	jjoyce@ci.burbank.ca.us
City of Anaheim Public Utilities	Dina Predisik	714-765-4182	dpredisik@anaheim.net
City of Redding Electric Utility	Pam Brady-Koss	530-339-7215	pbradykoss@reddingelectricutility.com
City of Glendale Water and Electric	Ned Bassin	818-548-2748	nbassin@ci.glendale.ca.us
City of Riverside Public Utilities	Atoya Mendez	909-826-5790	amendez@ci.riverside.ca.us
City of Roseville Electric	Pat Morrison	916-774-5624	pmorrison@roseville.ca.us
Pacific Power	Michael Reid	503-813-6052	michael.reid@pacificorp.com
City of Alameda Power and Telecom	Don Rushton	510-748-3946	drushton@alamedapt.com
City of Ukiah Public Utilities	Cindy Sauers	707-463-6295	cindys@cityofukiah.com
City of Lodi Electric Utility	Rob Lechner	209-333-6800 x 2583	rlechner@lodielectric.com

Grid-Connected PV Capacity in California

Graphing Data

YEAR

[illegible]

Grid-Connected PV Systems Installed in California

YEAR

Program	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003**	Total
Sacramento Municipal Utility District	0	0	0	1	0	1	0	0	0	0	0	6	56	124	113	62	17	37	211	134	306	0	68	1,136
California Energy Commission*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	180	215	1,238	2,226	2,079	5,979
Pacific Gas and Electric	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	127	125	650	1,309	1,227	3,465
Southern California Edison	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	47	59	311	585	515	1,531
San Diego Gas and Electric	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	31	275	332	332	976
Bear Valley Electric	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	5	7
Los Angeles Department of Water and Power	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
California Public Utilities Commission*																					0	9	27	36
Pacific Gas and Electric	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	27	36
Southern California Edison	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Diego Gas and Electric	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
***Southern California Gas Company	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pre-1998	2	2	4	4	6	16	0	1	4	1	2	-3	-45	-118	-108	-52	-7	37	0	0	0	0	0	-254
City of Palo Alto Utilities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	6	28	22	12	72
City of Santa Clara Electric Utility	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Pasadena Water and Power	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Burbank Water and Power	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	3
City of Anaheim Public Utilities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	13	12	33
City of Redding Electric Utility	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Glendale Water and Electric	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Riverside Public Utilities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	2	8
City of Roseville Electric	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pacific Power	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Alameda Power and Telecom	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Ukiah Public Utilities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Lodi Electric Utility	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	2	2	4	5	6	17	0	1	4	1	2	3	11	6	5	10	10	115	396	356	1,580	2,277	2,200	7,013
Cumulative Total	2	4	8	13	19	36	36	37	41	42	44	47	58	64	69	79	89	204	600	956	2,536	4,813	7,013	

NOTES

Numerous utilities have not yet provided the data to determine how many systems were installed per year.

"Pre-1998" Row: These numbers were derived by subtracting the total number of systems installed by SMUD each year from the totals contained in Appendix A of the 2001 EPRI Report titled "California Renewable Technology Market and Benefits Assessment." In some years, there is a negative number. This obviously did not happen. To be consistent with the EPRI data, it was decided to keep the negative number rather than make more assumptions.